



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/011,004	12/03/2001	Christopher J. Hansen	BP 1898	6949

7590 07/12/2006

Timothy W. Markison  
P.O. Box 160727  
Austin, TX 78716-0727

EXAMINER

SAMS, MATTHEW C

ART UNIT PAPER NUMBER

2617

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/011,004	<b>Applicant(s)</b> HANSEN ET AL.	
	<b>Examiner</b> Matthew C. Sams	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- 1: ☐ Certified copies of the priority documents have been received.
- 2: ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- 3: ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

### ***Response to Amendment***

2. This office action has been modified in response to the amendment filed on 4/25/2006.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen (US-5,491,837) in view of Chuang et al. (US-6,052,594 hereafter, Chuang).

Regarding claim 1, Haartsen teaches a method of dynamic frequency selection in a wireless communication network (Fig. 3) comprising determining by an access point (Fig. 3 [340, 350 & 360]), interference on a current wireless channel of a plurality of wireless channels (Co. 19 lines 36-38) when the interference on the current wireless channel exceeds a threshold as seen by the access point (Fig. 5 [340, 350 & 360]), and generating channel spectrum information by a mobile station. (Col. 19 lines 55-65)

Haartsen differs from the claimed invention by not mentioning the access point sends a request packet to find the channel spectrum information to at least one affiliated station by the current wireless channel, providing the channel spectrum information to the access point by the wireless channel.

In an analogous art, Chuang teaches a system and method for dynamically assigning channels for wireless packet communications that includes access points send request packets to find the channel spectrum information to at least one affiliated station by the current wireless channel (Col. 6 line 49 through Col. 7 line 4), providing the channel spectrum information to the access point by the wireless channel (Col. 6 line 62 through Col. 7 line 9) and having the access point send a selection packet that indicates the wireless channel to use. (Col. 7 line 60 through Col. 8 line 7, Fig. 4 and Col. 11 lines 1-67 specifically, lines 31-36) At the time the invention was made, it would be obvious to one of ordinary skill in the art to implement the wireless communication network of Haartsen after modifying it to incorporate the channel selection packets of Chuang. One of ordinary skill in the art would have been motivated to do this since having dynamic channel assignment provides the network with a robust tool to overcome a noisy wireless environment.

Regarding claim 2, Haartsen in view of Chuang teaches determining interference on the wireless channel by the access point by measuring the interference on the wireless channel during a transmit period allocated to a mobile station. (Haartsen Col. 3 lines 45-62)

Regarding claim 3, Haartsen in view of Chuang teaches providing the request packet by the access point comprises polling an affiliated station (Haartsen Col. 3 lines 45-62), enabling a periodic generation of the channel spectrum information and enabling a spontaneous generation of the channel spectrum information. (Haartsen Col. 3 lines 45-62 and Chuang Col. 6 line 49 through Col. 7 line 9)

Regarding claim 4, Haartsen in view of Chuang teaches generating the channel spectrum information by the affiliated station comprises tuning to the plurality of wireless channels, measuring the interference on the channels and compiling the data to produce the channel spectrum information. (Chuang Col. 6 line 55 through Col. 7 line 9)

Regarding claim 5, Haartsen in view of Chuang teaches interpreting the channel spectrum data by the access point further comprises computing an outage received signal strength indication (RSSI) level, comparing the outage RSSI level with a target RSSI level and determining if another wireless channel has a better RSSI level and should be used instead of the current channel. (Haartsen Col. 19 lines 29-48)

Regarding claim 6, Haartsen in view of Chuang teaches selecting another channel within a group of channels based on prioritization. (Chuang Col. 6 line 55 through Col. 7 line 9)

Regarding claim 7, Haartsen in view of Chuang teaches keeping the current wireless channel when the current wireless channel has the least amount of interference in comparison to other wireless channels. (Haartsen Col. 9 lines 22-24)

Regarding claim 8, Haartsen in view of Chuang teaches generating, by the access point, a basic service set pattern of neighboring access points within the wireless communication network based on the channel spectrum information. (Haartsen Col. 7 lines 49-65 and Chuang Col. 12 lines 1-54)

Regarding claim 9, Haartsen in view of Chuang teaches determining the interference on the current wireless channel exceeds the first interference threshold (Chuang Col. 9 lines 13-18), providing an increase power packet that indicates increased transmit power level to the affiliated station (Haartsen Col. 2 line 66 through Col. 3 line 13), transmitting with the increased power level and if still having interference problems, sending a request packet. (Haartsen Col. 3 line 35 through Col. 4 line 7)

Regarding claim 10, Haartsen in view of Chuang teaches generating the channel spectrum information by the affiliated station comprises tuning to the plurality of wireless channels, measuring the interference on the channels and compiling the data to produce the channel spectrum information. (Chuang Col. 6 line 55 through Col. 7 line 9) Haartsen in view of Chuang teaches interpreting channel spectrum information by a mobile station (Haartsen Col. 19 lines 55-65), and providing the channel spectrum information to the access point by the wireless channel (Chuang Col. 6 line 62 through Col. 7 line 9) and having the access point send a selection packet that indicates the wireless channel to use. (Chuang Col. 7 line 60 through Col. 8 line 7 and Col. 11 lines 1-67 specifically, lines 31-36)

Regarding claim 11, the limitations of claim 11 are rejected as being the same limitations stated above in claim 5.

Regarding claim 12, the limitations of claim 12 are rejected as being the same limitations stated above in claim 6.

Regarding claim 13, the limitations of claim 13 are rejected as being the same limitations stated above in claim 7.

Regarding claim 14, the limitations of claim 14 are rejected as being the same limitations stated above in claim 8.

Regarding claim 15, the limitations of claim 15 are rejected as being the same limitations stated above in claim 9.

Regarding claim 16, Haartsen in view of Chuang teaches a wireless communication network that includes a plurality of basic service sets that include an access point (Haartsen Fig. 3 [340, 350 & 360]), a plurality of stations that includes processing modules and memory (Haartsen Fig. 11 and 12) with instructions to determine, by an access point (Haartsen Fig. 3 [340, 350 & 360]), interference on a current wireless channel of a plurality of wireless channels (Haartsen Co. 19 lines 36-38) when the interference on the current wireless channel exceeds a threshold as seen by the access point (Haartsen Fig. 5 [340, 350 & 360]), and generating channel spectrum information by a mobile station. (Haartsen Col. 19 lines 55-65) Haartsen in view of Chuang teaches a system and method for dynamically assigning channels for wireless packet communications that includes access points send request packets to find the channel spectrum information to at least one affiliated station by the current wireless channel (Chuang Col. 6 line 49 through Col. 7 line 4), providing the channel spectrum information to the access point by the wireless channel (Chuang Col. 6 line 62

Art Unit: 2617

through Col. 7 line 9) and having the access point send a selection packet that indicates the wireless channel to use. (Chuang Col. 7 line 60 through Col. 8 line 7 and Col. 11 lines 1-67 specifically, lines 31-36) Haartsen in view of Chuang teaches a plurality of stations (Haartsen Fig. 3 [370 & 380]) that includes a processing module and memory with operational instructions that causes the stations to generate channel spectrum information of a plurality of wireless channels and providing the channel spectrum information to the access point via the current wireless channel. (Haartsen Col. 19 line 55 through Col. 20 line 8)

Regarding claim 17, the limitations of claim 17 are rejected as being the same limitations stated above in claim 2.

Regarding claim 18, the limitations of claim 18 are rejected as being the same limitations stated above in claim 3.

Regarding claim 19, the limitations of claim 19 are rejected as being the same limitations stated above in claim 4.

Regarding claim 20, the limitations of claim 20 are rejected as being the same limitations stated above in claim 5.

Regarding claim 21, the limitations of claim 21 are rejected as being the same limitations stated above in claim 6.

Regarding claim 22, the limitations of claim 22 are rejected as being the same limitations stated above in claim 7.

Regarding claim 23, the limitations of claim 23 are rejected as being the same limitations stated above in claim 8.



Regarding claim 24, the limitations of claim 24 are rejected as being the same limitations stated above in claim 9.

Regarding claim 25, Haartsen in view of Chuang teaches a wireless communication network that includes a plurality of basic service sets that include an access point (Haartsen Fig. 3 [340, 350 & 360]), a plurality of stations that includes processing modules and memory (Haartsen Fig. 11 and 12) with instructions to determine, by an access point (Haartsen Fig. 3 [340, 350 & 360]), interference on a current wireless channel of a plurality of wireless channels (Haartsen Co. 19 lines 36-38) when the interference on the current wireless channel exceeds a threshold as seen by the access point (Haartsen Fig. 5 [340, 350 & 360]), and generating channel spectrum information by a mobile station. (Haartsen Col. 19 lines 55-65) Haartsen in view of Chuang teaches a system and method for dynamically assigning channels for wireless packet communications that includes access points send request packets to find the channel spectrum information to at least one affiliated station by the current wireless channel (Chuang Col. 6 line 49 through Col. 7 line 4), providing the channel spectrum information to the access point by the wireless channel (Chuang Col. 6 line 62 through Col. 7 line 9) and having the access point send a selection packet that indicates the wireless channel to use. (Chuang Col. 7 line 60 through Col. 8 line 7 and Col. 11 lines 1-67 specifically, lines 31-36)

Regarding claim 26, the limitations of claim 26 are rejected as being the same limitations stated above in claim 2.

Regarding claim 27, the limitations of claim 27 are rejected as being the same limitations stated above in claim 3.

Regarding claim 28, the limitations of claim 28 are rejected as being the same limitations stated above in claim 5.

Regarding claim 29, the limitations of claim 29 are rejected as being the same limitations stated above in claim 6.

Regarding claim 30, the limitations of claim 30 are rejected as being the same limitations stated above in claim 7.

Regarding claim 31, the limitations of claim 31 are rejected as being the same limitations stated above in claim 8.

Regarding claim 32, the limitations of claim 32 are rejected as being the same limitations stated above in claim 9.

Regarding claim 33, Haartsen in view of Chuang teaches a station for use in a wireless communication network comprising a processing module and memory to dynamically select frequencies in a wireless communication network (Haartsen Fig. 3) comprising determining by an access point (Haartsen Fig. 3 [340, 350 & 360]), interference on a current wireless channel of a plurality of wireless channels (Haartsen Co. 19 lines 36-38) when the interference on the current wireless channel exceeds a threshold as seen by the access point (Haartsen Fig. 5 [340, 350 & 360]) generating channel spectrum information by a mobile station (Haartsen Col. 19 lines 55-65 and Chuang Col. 6 line 55 through Col. 7 line 9), and receiving, from the access point, a

packet that indicates that the access point will change to the desired wireless channel at a future time. (Chuang Fig. 4 and Col. 11 lines 1-67 specifically, lines 31-36)

Regarding claim 34, the limitations of claim 34 are rejected as being the same limitations stated above in claim 4.

Regarding claim 35, Haartsen in view of Chuang teaches selecting a frequency within a wireless communication network, the access point comprises a processing module and memory with instructions to obtain channel spectrum information by the affiliated station comprises tuning to the plurality of wireless channels, measuring the interference on the channels and compiling the data to produce the channel spectrum information. (Chuang Col. 6 line 55 through Col. 7 line 9) Haartsen in view of Chuang teaches interpreting channel spectrum information by a mobile station (Haartsen Col. 19 lines 55-65), and providing the channel spectrum information to the access point by the wireless channel (Chuang Col. 6 line 62 through Col. 7 line 9) and having the access point send a selection packet that indicates the wireless channel to use. (Chuang Col. 7 line 60 through Col. 8 line 7 and Col. 11 lines 1-67 specifically, lines 31-36)

Regarding claim 36, the limitations of claim 36 are rejected as being the same limitations stated above in claim 5.

Regarding claim 37, the limitations of claim 37 are rejected as being the same limitations stated above in claim 6.

Regarding claim 38, the limitations of claim 38 are rejected as being the same limitations stated above in claim 7.

Regarding claim 39, the limitations of claim 39 are rejected as being the same limitations stated above in claim 8.

Regarding claim 40, the limitations of claim 40 are rejected as being the same limitations stated above in claim 9.

### ***Response to Arguments***

5. Applicant's arguments filed 4/25/2006 have been fully considered but they are not persuasive.

In response to the applicant's argument regarding *Chuang does not disclose, suggest or teach providing a selection packet to the at least one affiliated station via the current wireless channel, wherein the selection packet indicates that the access point will change to the desired wireless channel at a future time* (Pages 27-28), the Examiner disagrees.

Chuang teaches a system and a method for dynamically assigning channels for wireless packet communications (Col. 7 lines 46-59 e.g. Dynamic Packet Assignment [DPA]) that includes assigning channels for downlink transmission of the data packets. Chuang teaches radio resources (channels) are assigned only when there are packets to be delivered. (Col. 1 lines 61-63) Chuang teaches that a channel is assigned for downlink transmission until all the data packets in the queue have been delivered or "until another DPA update is performed by a base station". (Col. 7 lines 54-58) Chuang teaches "during timeslot 1, which is a Dynamic Packet Assignment frame for base station BS1, in which channels are assigned for packets to be delivered during the next

superframe, base station BS1 turns off pilot frequency signals corresponding to the traffic channels currently being used by base station BS1". (Fig. 4 and Col. 11 lines 1-67 specifically, lines 31-36) Since it is well known that a frame is a packet (as can be seen for example in *Newton's Telecom Dictionary 20<sup>th</sup> Edition*), Chuang teaches sending a selection packet to a mobile station via the current wireless channel, wherein the selection packet indicates that the access point will change to the desired wireless channel at a future time.

In response to the applicant's arguments regarding claims 10, 16, 25, 33 and 35, the original rejection stands in view of the further explanation given above regarding claim 1.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Sams whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571)272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MCS  
7/7/2006

  
**LESTER G. KINCAID**  
**SUPERVISORY PRIMARY EXAMINER**